

5230 Evaluation

July 25, 1978

Quilcene Ranger District Evaluation

Forest Supervisor, Olympic NF

Gregory M. Filip, FIDM Plant Pathologist, visited the Quilcene Ranger District, Olympic National Forest on June 12-14, for the purpose of continuing an evaluation of root disease in Douglas-fir plantations (see Incidence of and damage caused by root diseases in Douglas-fir plantations on the Quilcene Ranger District, Olympic National Forest, Washington May 1978). He was accompanied by Craig Schmitt and Billy Lane, Forestry Technicians (RO).

They examined old residual stumps in a severely diseased plantation (#22). Many residual western hemlock stumps had advanced decay caused by *Fomitopsis annosa* (*Fomes annosus*). However, surrounding dead and dying Douglas-fir saplings were infected with another root pathogen *Armillaria mellea*. The purpose of their examination was to determine if any relationship existed between the two root pathogens.

Ten old-growth hemlock stumps with *F. annosa* decay and adjacent dead or dying Douglas-fir saplings were excavated by hand. Soil was removed from lateral roots of residual stumps where they contacted damaged saplings. Detailed maps were drawn showing the relative position of stump and sapling roots.

In all ten cases, Douglas-fir saplings were infected with *A. mellea* as indicated by mycelial fans and typical *A. mellea* decay. No other root pathogens were observed infecting saplings.

In all cases, lateral roots from residual stumps were decayed by *F. annosa*, and most roots with *F. annosa* decay also had decay caused by *A. mellea*. The two types of decay were often separated by zone lines on the same root. Where *A. mellea* decayed lateral roots of hemlock stumps had contacted Douglas-fir saplings, infection had spread to the saplings. However, where *F. annosa* decayed lateral roots contacted saplings, there was no spread of *F. annosa*.

These findings confirm what was suspected earlier (see report) that many of the old-growth hemlock stumps infected with *F. annosa* also have *A. mellea* infections on lateral roots which are spreading infection to adjacent Douglas-fir saplings.

As recommended earlier, when establishing plantations in areas that contain residual stumps decayed by root pathogens such as *F. annosa*, *A. mellea*, or *Phellinus weirii*, plant or regenerate these areas with species less susceptible to *A. mellea* or *P. weirii* such as western hemlock or western redcedar. Western hemlock seedlings may eventually become infected with *F. annosa* if present in adjacent residual stumps. However, these trees can probably be grown to merchantable size with slight butt rot. They should not die from *A. mellea* at age 10-20 years as Douglas-fir has.

If root diseases are detected when stands are being harvested, FIDM can assist in determining the disease potential of infected sites and suggest recommendations to alter planting methods if risk is high.

JACK MOUNTS

PAUL E. BUFFAM, Director
Forest Insect and Disease Management

GMFilip:pc

cc: Quilcene RD